CLAIMS

What is claimed is:

1. An apparatus for dispensing fluids into an air line, comprising:

a container having a means for valving so as to selectively open the container to allow a flow of fluids therefrom, the container being configured with a first means for locking and with a first means for engaging; and

a cap having a second means for engaging configured to engage the first engaging means so as to rotatably mount the cap onto the container, the cap being configured with a second means for locking for selectively engaging the first locking means so as to selectively allow the cap to move axially along the container, the cap being further configured with a means for actuating the valving means when the cap is moved axially toward the container.

2. The apparatus of claim 1 wherein:

the first locking means comprises a stepped channel formed in an outwardly-facing surface of the container; and

the second locking means comprises a post projecting from the cap so as to extend into the channel.

3. The apparatus of claim 2 wherein:

the container is formed with an upwardly-facing surface;

the channel is formed on the upwardly-facing surface so as to have an upwardly-facing channel surface, the channel being further formed as a circumferential arc;

a depression is formed along a portion of the channel; and

the post is configured to contact the channel surface when the cap is rotatably mounted onto the container, whereby rotation of the cap upon the container in a first rotational direction selectively engages the post with the channel surface so as to prevent axial movement of the cap relative to the container, and whereby rotation of the cap upon the

container in an opposite second rotational direction selectively positions the post within the channel adjacent to the depression so as to allow axial movement of the cap toward the container.

4. The apparatus of claim 1 wherein:

the valving means comprises a piston axially shiftable between a closed position and an open position;

a means for biasing the piston toward the closed position is configured to engage the piston and the container; and

the actuating means comprises a longitudinal member formed with at least one laterally-projecting tab configured to engage the piston and shift the piston to the open position upon axial movement of the cap toward the container.

5. The apparatus of claim 4 wherein:

the container is formed with a reservoir and a piston bore in fluid communication therewith;

the piston is slidably positioned within the piston bore; and

the piston is configured with a through-passage configured to alternately be sealed by the piston bore when the piston is in the closed position and be clear of the piston bore and in fluid communication with the reservoir when the piston is in the open position so as to cause the reservoir to be in fluid communication with the cap through the through-passage.

6. The apparatus of claim 5 wherein the cap is formed with a longitudinally-projecting conical nozzle having a plurality of apertures thereabout in fluid communication with the valving means.

7. The apparatus of claim 4 wherein the biasing means is a compression spring.

8. The apparatus of claim 1 wherein:

the cap is formed with a longitudinally-projecting nozzle having a conical surface;

a plurality of apertures positioned in spaced apart locations on the conical surface are formed in the nozzle so as to be in fluid communication with the valving means.

9. The apparatus of claim 8 wherein the nozzle is further formed with a spiral thread.

10. The apparatus of claim 1 wherein:

the container is formed with a substantially cylindrical wall so as to have a cylindrical outer surface;

the cap is formed with a downwardly-projecting circumferential skirt having an inner surface configured to be positioned circumferentially about a portion of the outer surface when the cap is rotatably mounted on the container;

the first engaging means comprises an outwardly-opening circumferential groove formed in the outer surface; and

the second engaging means comprises an inwardly-projecting circumferential ring formed on the inner surface and configured to engage the groove.

11. The apparatus of claim 10 wherein:

the groove defines a groove width;

the ring defines a ring width; and

the groove width is greater than the ring width so as to allow the ring to axially slidably engage the groove, whereby the cap moves axially on the container limited by the engagement of the ring within the groove.

12. The apparatus of claim 11 wherein:

the container is formed with a reservoir and a piston bore in fluid communication therewith;

the valving means comprises a piston slidably positioned within the piston bore so as to be axially shiftable between a closed position and an open position, the piston being

configured with a distal piston end and a proximal piston end and a through-passage therebetween, the through-passage alternately being sealed by the piston bore when the piston is in the closed position and being clear of the piston bore and in fluid communication with the reservoir when the piston is in the open position;

a spring engages the piston and the piston bore and biases the piston toward the first closed position; and

the actuating means comprises a tubular member having an inner lumen formed with at least one inwardly-projecting tab configured to engage the piston and shift the piston to the open position upon axial movement of the cap toward the container so as to cause the reservoir to be in fluid communication with the inner lumen through the through-passage.

13. An apparatus for dispensing fluids into an air line, comprising:

a container having a means for valving so as to selectively open the container to allow flow of fluids therefrom, the container being formed on an upwardly-facing surface with a circumferential channel having an upwardly-opening depression formed along a portion thereof, the container being further formed with a first means for engaging; and

a cap having a second means for engaging configured to engage the first engaging means so as to rotatably mount the cap onto the container, the cap being formed with a longitudinally-projecting conical nozzle having a plurality of apertures in fluid communication with the valving means, the cap being configured with a downwardly-projecting post configured to project into the channel when the cap is rotatably mounted onto the container, whereby rotation of the cap upon the container in a first rotational direction selectively engages the post with the channel so as to prevent axial movement of the cap relative to the container, and whereby rotation of the cap upon the container in an opposite second rotational direction selectively positions the post within the channel adjacent to the depression so as to allow axial movement of the cap toward the container, the cap being further configured with a means for actuating the valving means when the cap is moved axially toward the container.

14. An apparatus for dispensing fluids into an air line, comprising:

a container;

a conical nozzle in selective fluid communication with the container, the nozzle having a conical wall defining an outer conical surface and an inner conical surface, the conical wall being formed with a plurality of apertures so as to communicate between the outer conical surface and the inner conical surface, the nozzle being further formed on its outer conical surface with a spiral thread; and

a means for valving the container mounted between the container and the nozzle so as to selectively control the flow of fluids from the container to the nozzle.

15. The apparatus of claim 14 wherein:

the container is configured on an upwardly-facing surface with a circumferential channel having an upwardly-facing channel surface and a depression formed along a portion thereof, the container being further configured with a first means for engaging;

the nozzle is configured as a cap having a second means for engaging configured to engage the first engaging means so as to rotatably mount the cap onto the container, the cap being formed with a downwardly-projecting post configured to contact the channel surface when the cap is rotatably mounted onto the container, whereby rotation of the cap upon the container in a first rotational direction selectively engages the post with the channel surface so as to prevent axial movement of the cap relative to the container, and whereby rotation of the cap upon the container in an opposite second rotational direction selectively positions the post within the channel adjacent to the depression so as to allow axial movement of the cap toward the container, the cap being further configured with a means for actuating the valving means when the cap is moved axially toward the container.

16. The apparatus of claim 14 wherein:

a fluid line is attached to the container and to the nozzle so as to communicate therebetween; and

the valving means is installed in the fluid line.

17. A method of dispensing fluids into an air line, comprising the steps of:

rotatably mounting a cap onto a container by engaging a first means for engaging with a second means for engaging;

selectively opening the container using a means for valving so as to allow flow of fluids therefrom;

actuating the valving means when the cap is moved axially toward the container;

configuring the cap with a conical nozzle having a plurality of apertures in fluid communication with the valving means and having a spiral thread thereon;

forming a hole in the air line on an intake side of an engine injector system;

rotating the container relative to the cap to engage a post with a channel surface to thwart axial movement of the container relative to the cap, thereby preventing actuation of the valving means;

threadably inserting the nozzle into the hole;

rotating the container relative to the cap to position the post adjacent to a depression;

shifting the container axially toward the cap establishing fluid flow from the container, and the apertures and into the air line;

removing the nozzle from the hole after closing the valving means;and

inserting a plug into the hole to seal the air line.

18. A method of dispensing fluids into an air line, comprising the steps of:

forming a container with a reservoir;

filling the reservoir with an engine-performance-enhancing fluid;

forming a conical nozzle having a plurality of apertures and having a spiral thread thereon;

attaching a fluid line from the container to the nozzle so as to be in fluid communication between the reservoir and the nozzle;

providing in the fluid line a means for valving so as to selectively control the flow of fluids from the reservoir to the nozzle;

positioning the valving means within a passenger compartment of a vehicle;

closing the valving means so as to prevent the flow of fluids from the reservoir;

forming a hole in the air line on an intake side of an engine injector system;

threadably inserting the nozzle into the hole; and

selectively opening the valving means to allow fluid flow from the reservoir and through the fluid line to the nozzle, thereby dispensing the fluid through the air line into the engine injector system.